APPENDIX 1

SUPPLEMENTARY METHODS AND ANALYSES

Description of Subjects

Subject selection criteria

To be assigned to the panic disorder group, patients had to fulfill diagnostic criteria for panic disorder, with our without agoraphobia on the Anxiety Disorders Interview Schedule (ADIS). The non-panic anxiety (NPA) patient group was permitted to be diagnostically heterogeneous so that differences between group NPA and P would be attributable to panic rather than to some unique characteristic of the comparison group. To be assigned to the NPA group, patients could have generalized anxiety disorder, social phobia, agoraphobia without panic, or specific phobia.

Assessment of fear of heights was based on clinician severity and avoidance ratings in specific phobia section of the ADIS. Assignment to a no-height anxiety subgroup (NPAH- or PH-) required the absence of fear of heights of any clinical significance, and to H+, any clinically significant fear of heights.

Exclusion criteria were current or past history of another psychiatric disorder except those normally comorbid with anxiety disorders (e.g., Dysthymic Disorder or other mild depressive disorders). Participants could not have history of drug/alcohol abuse, active migraines, head trauma with loss of consciousness, family history of psychotic disorder, or history of prior vestibular testing, and they had to be willing to abstain from benzodiazepines for a two-week period prior to testing. Patients using benzodiazepines regularly were offered a

supervised slow withdrawal schedule. Antidepressant medication at stable doses was permitted.

Other questionnaire/interview measures: To further characterize the subjects, several questionnaire measures were obtained. These included the Cohen acrophobia questionnairecohen[1 2] for fear of heights, the Chambless Mobility Inventory[3] for agoraphobic avoidance, and the Hamilton Depression and Anxiety Rating Scales[4 5] (part of the ADIS) as indices of severity. In addition, an otological interview elicited information regarding otological symptoms, such as dizziness or tinnitus, and medication use.

Subject characteristics

Dropouts/excluded subjects and missing data: 139 subjects were recruited and 104 subjects participated in at least one vestibular/balance test of the study. The 35 who did not participate beyond the initial psychiatric evaluation had an average age of 31 years and included 10 males and 2 African-American subjects. Five of them were excluded and 30 dropped out. Of the five who were excluded, four had panic disorder with fear of heights. Of these, two refused to taper alprazolam, one had attention deficit problems, and one was physically ill on the day of testing and could not be rescheduled. The fifth subject was a normal control who was excluded because of a history of previous vestibular testing in other studies. The 30 dropouts included three patients with panic disorder and no fear of heights, ten patients with panic disorder and fear of heights, four patients with non-panic anxiety disorder and no fear of heights, seven with non-panic anxiety disorder and fear of heights, and six normal controls.

Of the 104 subjects, 2 had missing SMD data and 6 had missing anxiety response data. Vestibular test data were missing in 3 subjects for the rotational test, 6 subjects for the caloric test, and 6 subjects for posturography.

Diagnoses in the Non-panic anxiety groups: The majority of the NPA patients (30 of 50) had generalized anxiety disorder (GAD) comorbid with social phobia. In addition, thirteen had GAD without concomitant social phobia, four had social phobia without concomitant GAD, two had agoraphobia without panic, and one had specific phobia of driving. The high degree of comorbidity between GAD and social phobia is consistent with epidemiological data.[6] There were no systematic differences between the NPAH+ and NPAH- subgroups in the distributions of these diagnostic groups.

Table A1. Subjects characteristics by panic and fear of heights groups

	Descriptive data					(Sub)group comparisons (Effect size[1])			
	Anxiety patients				Normal Subjects	All subjects	Anxiety subjects		
	PH+	PH-	NPAH+	NPAH-		Patients vs. Normal Subjects	P vs. NPA	H+ vs. H -	H+ or P vs. neither H+ nor P
N (Total = 104)	19	6	28	22	29				
Age	34.3 (10.2)	29.5 (12.0)	29.7 (10.3)	27.7 (10.5)	35.0 (11.6)	-.19	.19	.16	.16
Gender (male)	21%	17%	11%	18%	17%	-.02	.08	-.04	.04
Race (minority)	16%	17%	18%	0%	21%	-.11	.09	.20	.24
On antidepressant medication	42%	33%	21%	14%	0%	.37**	.24	.13	.17
Self report of dizziness (constant or fluctuating) (N=91)	100%	20%	58%	32%	7%	.46**	.27*	.41**	.31**
SMD-1 score (N=102)	5.6 (3.4)	2.7 (1.8)	6.2 (3.1)	3.9 (3.4)	1.6 (3.5)	.48**	-.05	.35**	.24*
Fear of heights severity (ADIS) (median, range)	6.5 (1.5-8)	0 (0-3)	5.5 (2.5-8)	0 (0-1)	0 (0-1)	.51**	.23*	.85**	.73**
Cohen acrophobia questionnaire, fear scale	59 (23)	21 (16)	51 (20)	21 (16)	13 (11)	.50**	.24*	.63**	.53**
Cohen acrophobia questionnaire, avoidance scale	13.2 (8.1)	1.4 (1.4)	9.6 (6.4)	4.2 (3.8)	2.7 (4.6)	.37**	.21	.51**	.37**
Chambless Mobility Inventory, “avoidance alone” subscale	2.4 (0.83)	1.4 (0.56)	1.9 (0.82)	1.6 (0.46)	1.2 (0.15)	.45**	.21	.36**	.27*
Hamilton Depression Rating scale/25 (N=100)	17 (8.4)	9 (5.3)	11 (5.9)	11 (6.5)	1.8 (1.4)	.63**	.27*	.23	.14
Hamilton Anxiety Rating scale (N=100)	26 (9.8)	17 (6.7)	17 (7.9)	16 (8.0)	3 (2.3)	.69**	.36**	.24*	.20
Baseline Spielberger Anxiety State Level (N=97)	43.5 (8.9)	33.3 (9.1)	38.8 (12.3)	36.4 (9.9)	28 (5.8)	.52**	.15	.08	-.01
Anxiety response, rotational test	7.2 (8.9)	-0.5 (8.7)	0.25 (7.7)	2.8 (7.6)	2.2 (7.7)	.03	.20	.06	-.01
Anxiety response, caloric test	6.3 (7.2)	1.0 (5.8)	7.1 (9.0)	1.6 (11.3)	1.3 (5.8)	.18	.03	.28*	.22
Anxiety response, posturography	0.3 (7.2)	0.6 (1.7)	0.6 (8.2)	-1.0 (6.7)	-0.7 (5.6)	.04	.03	.08	.10

Unless indicated otherwise data are presented as mean (standard deviation).
PH+ Panic disorder with comorbid height phobia
PH- Panic disorder without comorbid height phobia

NPAH+: Non-panic anxiety disorder (typically generalized anxiety disorder or social phobia) with comorbid height phobia
NPAH- : Non-panic anxiety disorder without comorbid height phobia.
H+: combined PH+ and NPAH+ groups
H- : combined PH- and NPAH- groups
Either H+ or P vs. neither H+ nor P: combined groups NPAH+, PH+ and PH- compared to group NPAH-
1): Effect size: the Phi coefficient is used when both variables are binary, significance level tested withy the Fisher exact probability test; the point-biserial correlation coefficient is used when one variable is continuous and the other is binary.
2): ADIS: Anxiety Disorders Interview Schedule. Rating code: none (0), mild (2), moderate (4), severe (6) and very severe (8) [see text for details]
* $p<0.05$; ** $p<0.01$
SMD-1: questionnaire measure of SMD.

Normative data, listed as mean (standard deviation):
Unless indicated otherwise, the data are from the compilation by Antony et al "Practitioner's Guide to Empirically Based Measures of Anxiety" [7]

Cohen Acrophobia Questionnaire fear scale: normal college students: 27.10 (17.3); height phobics 61.3 (15.9);

Cohen Acrophobia Questionnaire avoidance scale: college students 4.6 (4.2); height phobics 14.4 (5.7)

Chambless Mobility Inventory "avoidance alone subscale": normal controls, 1.25 (0.24); two samples of patients with agoraphobia 3.30, 3.35 (1.06, 0.99)

Hamilton Depression Rating scale: Non-depressed individuals: 3.2 (3.2). A score of <=7 is a commonly used criterion for remission from depression.[8] We used the 25-item version included in the Anxiety Disorders Interview schedule. A cutoff of >= 16 on a 25-item version has been used as an inclusion criterion for depression treatment.[9]

Hamilton Anxiety Rating Scale: normal controls 2.4 (2.47); patients with anxiety disorders 18.95 (8.43)

Spielberger State Anxiety scales: working adult males 35.72 (10.4); females 35.20 (10.61)

Severity of fear of heights: In the ADIS, specific phobias are rated on “fear” and “avoidance.” “Fear” is rated as “none” (0), “mild” (2), “moderate” (4), “severe” (6) and “very severe” (8). Similarly, "Avoidance" is rated as “never” (0), “rarely” (2), “sometimes” (4), “often” (6) and “always” (8). Within the “heights” subgroups, the Pearson product-moment correlation between fear and avoidance ratings was r=0.75. The average of a person’s fear and avoidance was used as an indication of the severity of fear of heights. Table A1 shows a comparison among subgroups defined by the presence or absence of panic disorder diagnosis or fear of heights. For the PH+ subgroup, median severity was 6.5 (corresponding to “severe”). For the non-panic anxiety subjects with fear of heights (NPAH+) median severity was 5.5 (close to “severe”). Table A1 also shows the data from the Cohen Acrophobia Questionnaire. As expected, patients with fear of heights scored higher on the Cohen acrophobia fear and avoidance measures than those without fear of heights (point-biserial r = 0.63 and 0.51, for the “fear” and “avoidance” subscales, respectively). Their average fear scores of 59 and 51 are less than one standard deviation lower than the norm of 63 +/- 15.9 reported for height phobia. They are similar to pretreatment means in published treatment studies[2 10-13]

Other questionnaire measures: The anxiety patients had higher average scores than normal subjects on all anxiety-related measures except, notably, the three Spielberger State Anxiety “Response” measures to vestibular testing. Anxiety patients also had more SMD than normal controls. Patients with panic disorder had higher scores on the Hamilton Anxiety and Depression rating scales compared to patients with non-panic anxiety disorder. Patients with fear of heights were more likely to report dizziness on an otological than did anxiety patients without fear of heights (72% vs. 47%). They responded with greater increases in state anxiety to the caloric test than did those without such fear. They had relatively more SMD.

Table A2. SMD-questionnaire measure (SMD-1) and its correlations (anxiety patients only)

	Correlations[1] with SMD-1 (continuous measure)	Descriptive data for patients high vs. low in SMD [2]	
		SMD-1>=6	SMD-1<6
N		30	43
Age	-.05	31.4 (12.1)	30.0 (9.5)
Gender (male)	.11	13%	19%
Race (minority)	.11	9%	17%
On antidepressant medication	.07	30%	23%
Self report of dizziness (constant or fluctuating)	.36**	72%	46%
Panic disorder diagnosis	-.06	33%	35%
Fear of heights category (H)	.35**	77%	53%
Fear of heights severity (ADIS) median (range)	.42**	5.25 (0-8)	2.0 (0-8)
Cohen acrophobia fear scale	.49**	55 (22)	34 (24)
Cohen acrophobia avoidance scale	.49**	11.4 (6.4)	6.3 (6.9)
Chambless Mobility Inventory ("avoidance alone" subscale)	.41**	2.2 (0.89)	1.7 (0.64)
Hamilton Depression Rating Scale /25 (N=71)	.46**	16 (6.2)	10 (6.9)
Hamilton Anxiety Rating Scale (N=71)	.42**	23 (7.8)	17 (9.1)
Baseline Spielberger Anxiety State Level (N=67)	.24	40.6 (8.7)	38.0 (11.7)
Anxiety response, rotational test (N=65)	.02	3.7 (9.2)	2.0 (7.9)
Anxiety response, caloric test (N=65)	.35**	7.3 (11.2)	3.0 (7.7)
Anxiety response, posturography (N=63)	.25*	2.2 (9.1)	-1.6 (4.9)

Total N=73 unless indicated otherwise

* p<0.05; ** p<0.01

1) Gender, Race, Dizziness and Medication: point biserial correlations. All other correlations are Pearson product-moment correlations

2) Unless indicated otherwise data are presented as mean (standard deviation)

See Table 1 for ADIS rating code and normative data for instruments.

Correlates of SMD: Table A2 shows, for the anxiety patients only, correlates with our questionnaire measure of SMD, the SMD-1, both for the continuous SMD measure and the SMD categories based on the cutoff point of SMD1 >=6. The continuous SMD measure was not significantly related to gender, race, medication use, baseline state anxiety or the presence of panic attacks. However, SMD was consistently but moderately correlated with various measures of fear of heights, including the Cohen fear and avoidance measures (Pearson product moment correlation = .49 and the ADIS height severity index (r=0.42). In addition, SMD was moderately correlated with measures of anxiety severity (Hamilton Depression and Hamilton Anxiety r=0.46 and 0.42 respectively) and with agoraphobic avoidance (Chambless Mobility Inventory, r= 0.41). SMD was correlated with all anxiety response measures except that for rotational testing, the most claustrophobia-eliciting situation. The highest correlation with SMD was with anxiety response to caloric testing, a strong elicitor of vestibular symptoms.

DESCRIPTION OF VESTIBULAR/BALANCE TESTING

Caloric testing used the alternate binaural bithermal procedure in which each ear is stimulated with water at temperatures of 30 and 44 degrees C for 40 seconds using a closed loop irrigator, and eye movements are measured. To reduce the possibility of order-of-administration effects,[14] a four minute pause separated successive irrigations. The eye velocity responses were scored using Jongkees' formula with a cutoff of >=25% for unilateral hypofunction.

Rotational testing: Details of the rotational test procedure are described elsewhere.[15] Responses were classified as normal vs. abnormal based on published norms.[16] The rotational test result was also used as an indicator of central compensation to a vestibular reduction.

Computerized Dynamic Posturography was performed using the Equitest™ moving posture platform (Neurocom, Portland) and scored according to Nashner.[17] During the first three conditions of this test, (Conditions I-III), the platform on which the subject is standing is stable, whereas during the final three (Conditions IV-VI), the platform is sway–referenced. Sway referencing of the platform reduces ankle proprioceptive information by rotating the platform forward as the subject sways in the forward direction and vice versa. Within each of these support conditions, visual balance information is manipulated as follows: (a) eyes open (Condition I and IV); (b) eyes closed (Conditions II and V); and (c) visual surround sway-referenced (Conditions III, VI). Conditions III and VI are designed to assess visual dependence and Conditions IV–VI, to assess somatosensory dependence.

SUPPLEMENTARY ANALYSES

Additional Contingent Analyses of Vestibular/balance test findings

Caloric test: Unilateral hypofunction.

Clinical significance of caloric abnormalities. To further examine the clinical significance of abnormal caloric test findings, we examined their associations with the symptoms “tinnitus” and “history of ear infection,” as recorded in the otological interview. Results indicated no significant associations between caloric hypofunction and these variables.

Effect of other covariates: The result presented in the main paper indicated that when one or both of panic or fear of heights are present (“P or H”), caloric test results are more likely to be abnormal than when both P and H are absent. The composite covariate “either panic or fear of heights” (P or H) reduced residual deviance by almost as much as Model 2 that included Panic, Fear of Heights and their interaction as dependent variables (see Table 2 in main paper). To simplify further probing, we employed this single independent variable instead of the full P + H + P*H model.

Table A1 shows that the “P or H” variable was correlated with self-report of dizziness, the two Cohen acrophobia measures, and the Chambless Mobility Inventory scores. (Notably, it did not correlate significantly with anxiety response during the caloric test). To test if these variables could have mediated the association between “P or H” and the caloric test abnormalities, the associations between the questionnaire variables and abnormal caloric test results were examined. Results, displayed in Table A3 (first

data column)**,** indicated that none of these measures were significantly correlated with caloric hypofunction. Therefore, they did not mediate the “P or H” effect.

Table A3.

Associations between questionnaire variables and caloric and balance test abnormalities.

	Caloric test-unilateral hypofunction	Posturography (any condition)
Self report of dizziness [1)]	.07	.30**
Cohen acrophobia fear scale	.14	.07
Cohen acrophobia avoidance scale	.06	.11
Chambless Mobility Inventory (alone)	.11	.25*
Hamilton Depression Rating Scale /25	.16	.37**
Hamilton Anxiety Rating Scale	.13	.32**
Baseline Spielberger Anxiety State level	.10	.27**
Anxiety state response rotational test	-.05	.05
Anxiety state response caloric test	.09	.24*
Anxiety state response to posturography	.05	.15[2]

[1)] Phi coefficient (both variables binary); all other measures of association are point-biserial correlations
[2)] For anxiety patients excluding normal controls, r = 0.27
* p<0.05; ** p<0.01

Examination of central compensation defined as the moderating effect of rotational test findings. In this section, we examine the associations of Panic, fear of heights, and SMD with compensated vs. uncompensated vestibular lesions. A unilateral vestibular lesion is operationally defined as "compensated," meaning that the individual has adapted to the vestibular disorder, if the concomitant rotational test result is normal. Otherwise, the vestibular lesion is considered "uncompensated."

If a vestibular abnormality were to cause panic attacks, it might do so as mediated by vestibular-autonomic reflexes.[18] However, such effects would be expected to undergo rapid compensation.[19] Panic attacks may thus be associated with acute, uncompensated vestibular processes at a very early stage of the disorder, i.e. earlier than the stage during which our subjects were assessed. Therefore we did not expect an association between panic and uncompensated vestibular dysfunction in our sample.

It has been speculated that excessive SMD is related to a compensation strategy of sensitization to non-vestibular sensory balance inputs. If so, we would expect high SMD to be an indicator of a compensated vestibular process. Fear of heights may be similarly associated with compensated vestibular lesions. However, individuals with acute, uncompensated vestibular dysfunction may avoid some situations in which imbalance would be particularly dangerous (e.g., heights) or embarrassing (e.g., social situations) without necessarily having developed the full, differentiated, SMD spectrum.

To test these predictions, we examined if the association between the independent variables of interest would be moderated by normal vs. abnormal rotational test results. In fact, the association between fear of height ("H") and caloric hypofunction was Phi = 0.25 (p=0.043)

within a subgroup of 64 subjects with normal rotational test results, compared to Phi = 0.09 for 31 subjects with abnormal rotational test results. A logistic regression model was run of the caloric test result on fear of heights (H), the rotational test result (Rot), and the H*Rot interaction. Results indicated that the interaction was not statistically significant (X2=0.61; d.f.=1; p=0.43). Thus, the association between H and abnormal caloric test findings was not moderated by the rotational test results at a statistically significant level.

The correlations between caloric unilateral hypofunction and SMD were low in both subgroups, i.e., Phi=0.05 for those with normal rotational test findings and Phi = (–0.06) for those with abnormal rotational test findings. Thus, our hypothesis of an association between SMD and compensated caloric hypofunction was not confirmed.

A similar analysis for Panic disorder resulted in a correlation of Phi = 0.20 in individuals with normal rotational test findings and Phi = 0.14 in individuals with abnormal rotational asymmetry. This pattern is inconsistent with the hypothesis of panic being specifically associated with uncompensated vestibular lesions.

Posturography

Examination of variables potentially mediating the association between SMD and abnormal posturography. Variables that are correlated with both SMD (Table A2) and abnormal posturography (Table A3, second data column) are of interest as potential mediators of the association between SMD and abnormal balance. These variables include self-report of dizziness, Chambless agoraphobic avoidance scores, depression and anxiety levels measured by the two Hamilton inventories, and anxiety response to the caloric test, which all showed

statistically significant associations with both abnormal posturography and SMD. If the effect of SMD were mediated by one of these variables, there would be no independent association between SMD and abnormal posturography when that variable is included as a predictor. However, multivariate logistic regression analyses using SMD and one of each of these measures as independent variables revealed that, in each case, SMD retained its significant independent association with abnormal posturography. Therefore the effect of SMD was not mediated by these variables.

Test for panic disorder as a moderating variable of the SMD-abnormal posturography relationship: This analysis was conducted to examine if the SMD-abnormal posturography relationship was limited to the Panic group. The effect size of the association between our measure of SMD and abnormal posturography amounted to point-biserial r = 0.44 for the non-panic anxiety disorder group and r=0.31 for the panic disorder group. To statistically test for a possible moderating effect of diagnosis of panic disorder, a model was constructed that included the main effects of SMD and P and their interaction (SMD*P). The interaction was not statistically significant ($X2 = 0.13$; d.f.=1, p= 0.72). Thus, the association between SMD and abnormal performance on posturography was not specific to patients with panic disorder.

Sensitivity and specificity of the SMD measure in predicting abnormal posturography: A sensitivity and specificity analysis of the ability of the SMD-1 to predict the results of posturography was performed following the method detailed by Kraemer.[20] Because indicators of sensitivity and specificity do not necessarily reflect the extent of chance agreement (for example, sensitivity = 100% when all cases are declared to be abnormal regardless of SMD-1 value), indices of their “quality” are calculated. These quality indices are weighted kappa

coefficients that correct for chance agreements. They provide the basis for deriving which cutoff would be optimal, depending on whether the primary concern is sensitivity, specificity or overall efficacy. That is, the scale values at which the respective quality index is at a maximum are taken as cutoff points for the optimally sensitive, specific or efficacious test.

Table A4 shows the sensitivity, specificity and efficacy at various cutoff points of the SMD measure, along with their quality indices. The Receiver Operator Characteristics curve appears in Figure A1 below. A cutoff of SMD-1>=2.5 provided the optimally sensitive test. At this point, sensitivity = 0.91 and specificity = 0.4. A cutoff of SMD-1 >= 8 provided the optimally specific test: specificity = 0.85 and sensitivity = 0.4. The cutoff of SMD>4.5 provides the optimally efficient test. At this cutoff, sensitivity = 0.77 and specificity = 0.68. Table A4 also shows data for the cutoff of >=6 that we had chosen a priori based on the bimodal distribution of SMD-1 scores; at this cutoff, sensitivity = 0.64 and specificity = 0.7.

FIGURE A1

Receiver Operator Characteristic analysis relating smd-1 to "any posturography condition abnormal"

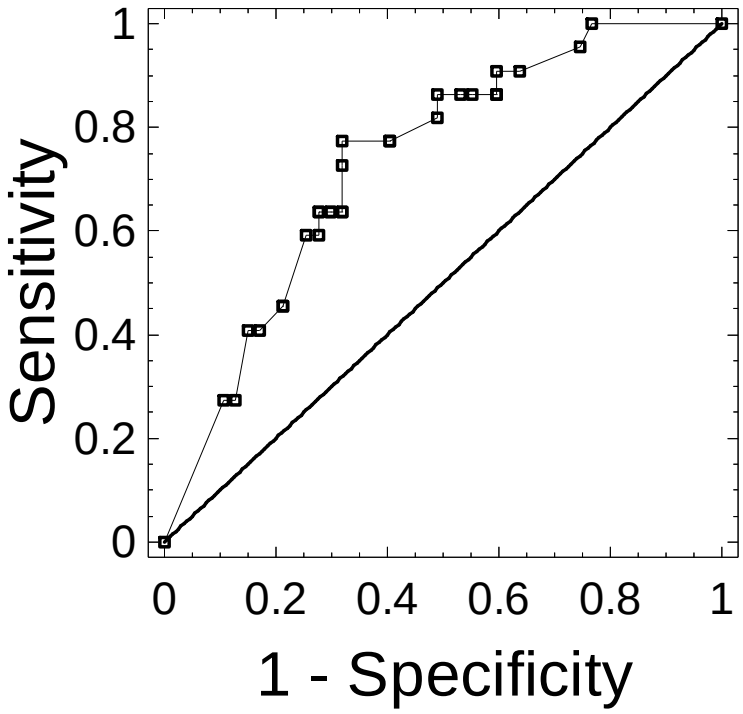

Table A4. Sensitivity, specificity and efficiency of smd-1 predicting abnormal finding on dynamic posturography (any condition) in patients with anxiety disorders

Cutoff	Level[1]	SE	Quality index[2] for SE	SP	Quality index[2] for SP	Efficiency	Quality index for Efficiency[2]	Comment
>=2.5	70%	0.91	0.70	0.40	0.14	0.57	0.24	Optimally sensitive test
>4.5	46%	0.77	0.58	0.68	0.31	0.71	0.41	Optimally efficient test
>=6.0	41%	0.64	0.39	0.70	0.27	0.68	0.32	Point used in text to illustrate the results
>=8.0	23%	0.41	0.23	0.85	0.36	0.71	0.28	Optimally specific test

SE= sensitivity; SP = Specificity
1 level= proportion of anxiety patients satisfying cutoff criterion.
2 Quality index: see Kraemer.[20]

SPECIFIC POSTUROGRAPHY CONDITIONS

Interrelationships between conditions III and IV by SMD status. Among the conditions showing significant or near significant associations with SMD, Condition III is of interest as an indication of “visual dependence” and Condition IV, of “surface dependence.” Among the 28 patients with high SMD, none was abnormal only on Condition III, five were abnormal only on Condition IV, and five were abnormal on *both* Condition III and IV. Among the 41 patients with lower SMD, one was abnormal only on Condition III, 3 were abnormal only on Condition IV; but none was abnormal on both Conditions III and IV. Thus the most *specific* finding for patients high in SMD, was abnormal function on both Condition III and IV, i.e., a combination of “surface dependence” and “visual dependence.”

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APPENDIX 2

A. THE SITUATIONAL CHARACTERISTICS QUESTIONNAIRE

B. INFORMATION ABOUT SCORING THE SMD-1

A. Situational Characteristics Questionnaire

Part I:

Below are some situations that may elicit discomfort or anxiety for you. We are interested in whether certain characteristics of the situation bother you in comparison with other characteristics of the same situation.

You can also mark the space between the numbers if your discomfort seems more than what is indicated by one particular number but less than the next higher number (i.e. in between “moderately” and “very much”, in between “mildly” and “moderately”, or in between “mildly” and “not”.) If you rate all characteristics of a particular situation as “3" (very much bothered) but one is even worse than another, please underline the characteristic that bothers you the most.

Specifically, please circle:

3 If you are very much bothered by the characteristic
2 If you are moderately bothered by the characteristic
1 If you are mildly bothered by the characteristic
0 If you are not bothered by the characteristic

Riding as a Passenger in a Car:

1.	Uphill	0	1	2	3
	Downhill	0	1	2	3
2.	Bumpy roads	0	1	2	3
	Smooth roads	0	1	2	3
3.	Straight roads	0	1	2	3
	Winding roads	0	1	2	3
4.	Wide roads	0	1	2	3
	Narrow roads	0	1	2	3

5.	Limited access roads (i.e. freeways, turnpikes)	0	1	2	3
	Unlimited access roads	0	1	2	3
6.	Front seat	0	1	2	3
	Back seat	0	1	2	3
7.	Changing speed (i.e. braking, accelerating)	0	1	2	3
	Steady speed	0	1	2	3
8.	Reading	0	1	2	3
	Looking out window	0	1	2	3

Buses:

9.	Standing on platform	0	1	2	3
	Sitting	0	1	2	3
10.	Aisle seat	0	1	2	3
	Window seat	0	1	2	3
11.	Standing still	0	1	2	3
	Moving	0	1	2	3
12.	Crowded	0	1	2	3
	Empty	0	1	2	3

Supermarkets:

13.	Crowded	0	1	2	3
	Empty	0	1	2	3
14.	Near Exit	0	1	2	3
	Far from Exit	0	1	2	3
15.	Looking at end of aisle while walking straight down the aisle.	0	1	2	3
	Looking at items on shelf while walking straight down the aisle.	0	1	2	3

Large fields or open squares:

16.	Open (i.e. without nearby boundaries: trees, fences, and hedges).	0	1	2	3
	Enclosed (i.e. with nearby boundaries)	0	1	2	3
17.	Edge of a field	0	1	2	3
	Middle of a field	0	1	2	3

Tunnels:

18.	Straight	0	1	2	3
	Curved	0	1	2	3

19.	Looking at end of tunnel	0	1	2	3
	Looking at lights on side of tunnel	0	1	2	3

Movie Theaters:

20.	Sitting in middle of row	0	1	2	3
	Sitting on aisle	0	1	2	3
21.	Sitting far in front	0	1	2	3
	Sitting far in back	0	1	2	3
22.	Wide screen	0	1	2	3
	Narrow screen	0	1	2	3

Airplanes:

23.	Changing altitudes	0	1	2	3
	Flying at a steady altitude	0	1	2	3
24.	Landing	0	1	2	3
	Taking off	0	1	2	3
25.	Smooth ride	0	1	2	3
	Turbulence	0	1	2	3
26.	Window seat	0	1	2	3
	Aisle seat	0	1	2	3
	Middle seat	0	1	2	3

Elevators:

27.	Stationary	0	1	2	3
	Moving	0	1	2	3
28.	Crowded	0	1	2	3
	Empty	0	1	2	3
29.	Going up	0	1	2	3
	Going down	0	1	2	3
30.	Standard	0	1	2	3
	Glass	0	1	2	3
31.	Starting	0	1	2	3
	Moving at steady speed	0	1	2	3
	Stopping	0	1	2	3

Escalators:

32.	Going up	0	1	2	3
	Going down	0	1	2	3

Part II:

(SMD-2)

Are you bothered by any of the following:

3 Very bothered
2 Moderately bothered
1 Mildly bothered
0 Not bothered

33.	Aerobic exercise	0	1	2	3
34.	Rolling over in bed	0	1	2	3
35.	Closing eyes in shower	0	1	2	3
36.	Looking up at tall buildings	0	1	2	3
37.	Leaning far back in a chair	0	1	2	3
38.	Reading newspaper close to face	0	1	2	3
39.	Riding on roller coaster	0	1	2	3
40.	Dancing	0	1	2	3
41.	Does you discomfort increases as the day progresses (i.e. later during the day)	0	1	2	3

B. Worksheet for scoring the SMD-1

Item number	SMD subitem (A)	Score	Non-SMD subitem (B)	Score	Item score A – B[1)]
Riding as a passenger in a car					
1	Downhill		Uphill		
2	Bumpy		Smooth		
3	Winding		Straight		
4	Narrow		Wide		
6	Back seat		Front seat		
7	Changing speed		Steady speed		
8	Reading		Looking out the window		
Buses					
9	Standing on platform		Sitting		
11	Moving		Standing still		
Supermarkets					
14	Looking at items on shelf		Looking at end of aisle		
Large fields or open squares					
16	Open		Enclosed		
17	Middle of field		Edge		
Tunnels					
18	Curved		Straight		
19	Looking at lights on side		Looking at end		
Movie theaters					
20	Sitting in front		Sitting far back		
22	Wide screen		Narrow screen		
Elevators					
27	Moving		Stationary		
30	Glass		Standard		
31a	Stopping		Steady speed		
31b	Stopping		Starting		
1. SUM					
2. # of items with non-missing data					
3. **AVERAGE** (score only if at least 70 % of the items are non-missing)					
4. ***SCORE***= AVERAGE x 10					

[1)]If A-B <0 then recode as 0.

Instructions for scoring the SMD-1 subscale of the Situational Characteristics Questionnaire:

1. Copy item responses in questionnaire into appropriate location in Column A and B.
2. Note that the order of A and B sometimes is reversed in the questionnaire. Also note that not all questions are actually scored.
3. Calculate the item score = A-B; however, if A-B<0 recode as “zero” (0)
4. Calculate the sum of the item scores (line #1 bottom of table)
5. Count the number of items with non-missing data (line # 2)
6. Calculate the average (= sum / number of items with responses) provided 70% of data are present
7. Calculate the SMD-1 score = 10 x the average

Note: The SMD-2 (i.e., Part II of the Situational Characteristics Questionnaire) was not used in the present study. It is suitable for patients with dizziness in a non-psychiatric setting.